BEFORE THE

CALIFORNIA CLEAN ENERGY JOBS ACT

CITIZENS OVERSIGHT BOARD

CALIFORNIA ENERGY COMMISSION

CHARLES IMBRECHT HEARING ROOM - FIRST FLOOR

1516 NINTH STREET

SACRAMENTO, CALIFORNIA

MONDAY, DECEMBER 3, 2018

1:00 P.M.

Reported by:
Gigi Lastra

APPEARANCES

BOARD MEMBERS PRESENT (*Via telephone and/or WebEx)

Kate Gordon, Chair, California Citizens Oversight Board

*Mark Gold, Vice Chair, California Citizens Oversight Board

Adrienne Alvord, California Citizens Oversight Board

Barbara Lloyd, California Citizens Oversight Board

David Dias, California Citizens Oversight Board

*Randall Martinez, California Citizens Oversight Board

*Heather Rosenberg, California Citizens Oversight Board

EX OFFICIO MEMBERS PRESENT

Michael Murza, Law & Policy Advisor to Chair Weisenmiller

Bryan Early, Special Advisor to Commissioner McAllister

COB STAFF PRESENT

James Bartridge

CEC STAFF PRESENT

Michael Murza, Law & Policy Advisor to Chair Weisenmiller

Bryan Early, Special Advisor to Commissioner McAllister

Tomas Ortiz, California Energy Commission

ALSO PRESENT (*Via telephone and/or WebEx)

Anna Ferrera, Executive Director, School Energy Coalition

Christina Hernandez, University Of California, Los Angeles

APPEARANCES (Cont.)

ALSO PRESENT (Cont.) (*Via telephone and/or WebEx)

Nikolai Kaestner, Director of Sustainability, San Francisco Unified School District

Bill McGuire, Deputy Superintendent, Twin Rivers Unified School District

*Darin Vey, Energy Utilities Program Supervisor, San Diego Unified School District

Hoang Nguyen, California Community College Chancellor's Office

*Joe Fullerton, San Mateo County Community College District

PUBLIC COMMENT: (*Via telephone and/or WebEx)

I N D E X

P R O C E E D I N G S

DECEMBER 3, 2018 1:05 P.M.

MR. BARTRIDGE: We're going to go ahead and get started, so good afternoon everyone and welcome to the final meeting of 2018 of the Citizens Oversight Board. I'm Jim Bartridge, Board staff.

And let me start with a few housekeeping items. The bathrooms are out the door to your left and we used to have a second floor snack bar. We don't anymore. There are some vending machines up there. If there's an emergency and we end up evacuating the building please follow us across the street to Roosevelt Park. And when that emergency clears, we'll come back into the room. And so that's that. Let me turn it over to Chair Gordon.

CHAIR GORDON: Thank you so much and welcome to everyone in the room. It's nice to have people here.

We realized or I realized that this meeting is, I think the first one since the official end of the original Clean Energy Jobs Act, and so that's very exciting. So we wanted to just take a second to talk a little bit about some of those five-year milestones that have been reached with this program as we then go forward into the next phase of the money being spent out after the end of first official five years. So we'll be hearing today about the

School Bus Program, which is a big piece of that; and then some of the ongoing work happening at schools, of course, that are still doing work from their grants from the original program and then thinking a little bit toward the future.

So just for those who have not been as deeply steeped in this as those of us up here, you will remember that in November of 2012 California voters approved Prop 39, the California Clean Energy Jobs Act, to create jobs, save energy, reduce energy costs and greenhouse gas emissions and provide job training and workforce development. Those were all in the proposition as goals of the program.

The revenue for this program came from a change to the corporate tax code, which essentially switched us from a dual factor to a single factor sales tax state. And those revenues, the proposition allocated half of the revenues from that change to the Clean Energy Jobs Creation Fund for five years. And that started July 1st, 2013 and just ended this past June.

So it was a long process from 2012 until now. And it's gone through a lot of different guidance, a lot of implementation. At the end of the day I think we can all be really proud. Everyone, in fact, I know in this room and up here and everyone who is out there who's worked on

the program, should be really proud of what this program has accomplished.

We've seen over that five years, over $1.7 billion to local education agencies for energy efficiency and clean energy projects; over 220 million to community colleges, for those types of projects and for work force development and training classes; 26 million for energy surveys and conservation activities and many of those surveys have led to work being done beyond the scope of this program, being done by leveraging other grants, by looking at other state funds and by getting private investment. And about $12 million specifically for preparing underserved communities including formerly incarcerated individuals, folks from underserved communities and veterans for training for clean energy jobs. That's through the pre-apprenticeship programs at the Workforce Development Board, as well as the California Conservation Corps.

All of that has happened, as you guys know through a combination of things: through our grants, loans and technical assistance, which have leveraged an enormous amount of more money, and job training work force development programs.

And this -- you know as somebody who's worked for a long time at that intersection of economic development

and energy this is one of the real success stories out there of a program that actually did an intentional and a good job of incorporating workforce development into a program that also created jobs. And we have some real outcomes that we can look at from these programs which I'm really proud of.

So the funding ended this past June at about -- there were about $117 million left over at the end of that period. That means that they were not allocated to schools that had applied in the application period.

And the Senate had passed SB 110, essentially directing those funds to a combination of a School Bus Replacement Program and the ECCA-Ed Competitive Loan Program. And so all of those funds have been allocated and we're going to hear today about the School Bus Program. We've been getting great updates on that program and will hear more about it today and then we'll hear more about how ECCA-Ed is working -- what's happening with ECCA-Ed next year.

We here, of course, were created to both kind of pay attention to all of these different agencies working together to implement this program. We do an annual report to the Legislature that takes all of the underlying reports from the agencies, synthesizes them, summarizes them and provide our own recommendations to the Legislature. We

also of course perform the audit. We hire out to perform the audit of all these programs through the State Controller's Office.

And I think we have been in a unique position to be able to sort of watch how this has played out and see what works and what doesn't work over the past five years.

Currently, this Board has -- it's a nine-member Board. It's supposed to be a nine-member Board. We have seven members right now. Chelina Odbert's term recently expired, I'm sorry to say. We sent her a note thanking her. She was a really great voice on this Board for five years.

I want to congratulate Randall Martinez, who was reappointed by the Attorney General's office in early November and is with us again. Randall, you just can't escape us. I'm sorry about that.

BOARD MEMBER MARTINEZ: Thank you, Kate.

CHAIR GORDON: So we're glad you're here. We're hoping to have two additional AG appointments in the near future. Those are the two missing appointments. And I just want to say thanks to Chair Weisenmiller's Advisor, Michael Murza, who is here with us as well as Commissioner Andrew McAllister's Advisor Bryan Early for being with us today in their ex officio capacities. So thank you both for being here.

I wanted to see if anyone else on the Board had anything they wanted to share before we jump into roll calls and agendas, any wise thoughts from anyone on the Board? It's good to be here. I really appreciate everyone's service and I just hope everyone shares with me the pride in just what we've managed to accomplish through this program over the past five years and what we can still do.

So with that, I will turn it back to Jim for roll call.

MR. BARTRIDGE: Very Good.

Chair Gordon?

CHAIR GORDON: I'm here.

MR. BARTRIDGE: David Dias?

BOARD MEMBER DIAS: Here.

MR. BARTRIDGE: Barbara Lloyd?

BOARD MEMBER LLOYD: Here.

MR. BARTRIDGE: Adrienne Alvord?

BOARD MEMBER ALVORD: Here.

MR. BARTRIDGE: Vice Chair Gold, have you joined us?

BOARD MEMBER ROSENBERG: He's not here yet.

MR. BARTRIDGE: Okay.

Randall Martinez?

BOARD MEMBER MARTINEZ: I'm here.

MR. BARTRIDGE: And Heather Rosenberg?

BOARD MEMBER ROSENBERG: Here.

MR. BARTRIDGE: So Chair, we do have a quorum --

CHAIR GORDON: Perfect. Let's go.

MR. BARTRIDGE: -- at this point. So we only have one voting item today, which is the minutes from July 19th. Unfortunately I was out on that day due to a racing accident with my son and go carts, but I'm happy to be back with you today. And this time Jack's out.

CHAIR GORDON: Oh yeah, I'm so sorry. I meant to say this, it was not on my first page of notes but Jack, who has been with us for this whole period of time, is out because he just had a baby. So Jack's new son, Emmett John Bastida was just born before Thanksgiving, on November 20th. He is six pounds, one ounce. He is very healthy. Everyone is doing well. We're very excited to have a new member of our Advisory Board team.

MR. BARTRIDGE: There you go. Perfect. Okay well I have the minutes up. I trust you've all looked at them.

BOARD MEMBER DIAS: I make a motion to accept the minutes.

MR. BARTRIDGE: Very good.

BOARD MEMBER ALVORD: I second.

MR. BARTRIDGE: And can we have a vote?

CHAIR GORDON: Let's just --
MR. BARTRIDGE: Do a roll call?
CHAIR GORDON: Yeah, let's do a roll call. Yeah, just (indiscernible) on the phone.
MR. BARTRIDGE: Chair Gordon?
CHAIR GORDON: Approve, yes.
MR. BARTRIDGE: David?
BOARD MEMBER DIAS: Yes.
MR. BARTRIDGE: Barbara?
BOARD MEMBER LLOYD: Yes.
MR. BARTRIDGE: Randall?
BOARD MEMBER MARTINEZ: Yes.
MR. BARTRIDGE: And Heather?
BOARD MEMBER ROSENBERG: Yes.
MR. BARTRIDGE: Okay. The minutes are approved.
CHAIR GORDON: Can we just periodically check whether -- or actually Christina, (phonetic) can you just tell us as soon as Mark shows up, so that we know when we have him with us?
CHRISTINA: Sure. Yes.
CHAIR GORDON: Thank you. Just feel free to interrupt whatever's happening. Thank you.
MR. BARTRIDGE: Okay so we have a full agenda --
UNIDENTIFIED SPEAKER: (Indiscernible.)
MR. BARTRIDGE: I missed that, sorry?

CHAIR GORDON: Was that you Mark?

UNIDENTIFIED SPEAKER: No. It was an editorial about (indiscernible).

CHAIR GORDON: Thank you for that.

MR. BARTRIDGE: Okay so we do have a full agenda today. We're going to just keep moving right through. We're joined by members of the School Energy Coalition. We have an update on the School Bus Replacement Program. And then we have an update from the Community College Chancellor's Office on some of their Prop 39 work and the sustainability awards they've given. So let me just roll right into item three, cost effectiveness.

You can come on up. And this is Tomas Ortiz from the School Bus Replacement Program.

MR. ORTIZ: Hello.

CHAIR GORDON: Thanks for being here.

MR. ORTIZ: Yeah, no problem. How do I get full screen on this? Can I get a full screen on this or just keep it like this?

CHAIR GORDON: And Tomas, can we ask you questions during your presentation or do you want us to wait.

MR. ORTIZ: You can ask questions.

CHAIR GORDON: Great, so people should feel free on the Board to jump in if you have questions.

MR. ORTIZ: All right, so my name is Tomas Ortiz. I'm the Air Resources Engineer for the School Bus Replacement Program. I want to thank you for having us here today and especially thank you for letting me go first. It's a little bit easier for me that way.

So I'm here to give you an update on the School Bus Program. We've had some pretty exciting developments recently. I also want to kind go over our cost effectiveness model with you as well.

Okay. So Chair Gordon introduced Senate Bill 110 already, so that's where we get our funding allocation. So we get $75 million to replace diesel school buses with electric school buses.

I highlighted some of the important parts of the legislation for you. So these buses must be scrapped after they're replaced. We don't want the diesel buses to stay on the road. And these buses must be proven to be cost effective over time. And to be cost effective, it doesn't just mean that these are energy benefits. This can be things such as health and safety.

So when we were constructing our program we split it into three components. So the first component is the actual replacement of the bus. So in order to do this we kind of did a two-phase solicitation, so the first one is actually done with. We've received all the

applications. They're scored. We published these within the last two weeks.

So we had school districts, county offices of education, and joint power authorities apply. They gave us information about their bus fleet. And we were able to kind of get some individual characteristics of these districts and the regions that they're serving, so that we could get the disadvantaged community score as well as their participation in the free and reduced price meal program. And we were able to score based on that.

So Phase 2 of this is a solicitation for school bus dealers and manufacturers. We're trying to do bulk pricing with them, so this is a procurement process to kind of lock down a price. It's not out yet. I believe it's routing, so I can't really give too much details on that. So the second phase is really important as well. So we have another program here at the Energy Commission called the Alternative and Renewable Fuel and Vehicle Technologies Program, or ARFVTP. It's a mouthful, so I'm not really sure, which one you're more comfortable with. So we're setting aside up to $60,000 per electric bus awarded. So this can go for all infrastructure related to fueling the bus. This is charging, trenching. If they have money left over, they can do solar panels or battery storage. Anything that helps them save costs and charge the buses.

And then the final one is going to be we want to provide workforce training and development for the --

CHRISTINA: Mark is here now, sorry to interrupt.

MR. ORTIZ: That's okay.

CHAIR GORDON: Thank you. Welcome, Mark.

MR. ORTIZ: Okay. So yeah, the third phase is to provide workforce training and development for these school districts. A lot of these buses are going to be coming with warrantees for it's usually up to five to eight years depending on the manufacturer. But we want to make sure that the districts that receive these buses are going to take care of these buses for kind of the smaller things in the interim and then also be able to maintain these buses long term.

So I also want to point out the bottom left image here is actually a CNG fueling station. We did have some money through ARFVTP set aside for some CNG buses. It was I believe $3.1 million for infrastructure, is what we ended up with and I want to say $2.7 for school buses themselves. So we should be using all that funding as well.

Okay. So let's go over some of the key milestones. Anything that's bolded has already passed, so like I said GFO-17-607. That's how we accumulated the list of the buses that were requested to be replaced, so that

opened in May of this year and it closed September 20th. I'm going to be giving you some kind of high-level statistics of the results that we saw through this solicitation process. But the results were posted in the last two weeks. You can find this on our website.

So some of the more notable upcoming targets, we're expecting soon to come out with the second solicitation targeting the dealers and manufacturers that should be coming out any day now. And we're hoping early next year to get Commission approval to move forward with the NOPA for the CNG. And then shortly after that we'll be releasing our results for both the manufacturer solicitation as well as a final NOPA for the electric list. And then we're going to start installing infrastructure. We know that we need probably a least seven months lead time on installing infrastructure to make sure that the school districts can actually accept these buses. And then we're hoping to get the first ones to start rolling out about this time next year.

CHAIR GORDON: Tomas, can I just ask you really quickly, when you did the solicitation for the rank list did you get -- I mean, it sounds like it was sort of a voluntary. Did you get good representation from across the state? Do you have some big holes in that, or --

MR. ORTIZ: There were some holes. I have a

couple of slides that kind of go over this.

CHAIR GORDON: Thanks.

MR. ORTIZ: But it was really good representation. We were really happy with what we got.

CHAIR GORDON: Great

MR. ORTIZ: So actually I think the next slide pretty much goes over what you were just asking. Okay. So there were -- I don't know the exact number off the top of my head. There was a little over 1,000 possible applicants, this is school districts, county offices of education and transportation agencies, JPs. Not all of them have school buses. We're not exactly sure who has them and who doesn't. But we got about 200 applicants just for the electric vehicle portion of it. So you can see of the 200 about a quarter of them were in Northern California. Half of them were in the Central Valley. Southern California was 35 of them and we had just 12 from L.A. County.

So this added up to about 1,500 electric buses requested for replacement throughout the state. And of those about 63 percent of them are 20 years or older, so these are really old buses as well.

BOARD MEMBER ALVORD: Excuse me. Do you have a sense of why the L.A. County participation was so much lower? Was it (indiscernible)?

MR. ORTIZ: I'm not sure why the participation in L.A. was so low. We were expecting a little bit more, but it could be that they just don't have that many buses outside of like L.A. Unified.

CHAIR GORDON: So it may be that they -- I mean we experienced this with some of the earlier funding for Prop 39 too. It may be they have passed a number of very expensive bonds in the last few years and they've done huge amounts of replacements of things. So it could be also that they've done a big program down there, but we should find out. It's a good question.

MR. ORTIZ: Yeah, and also --

VICE CHAIR GOLD: Yeah. Let's double check on that, please.

MR. ORTIZ: Yeah, and South Coast AQMD also has a -- or had a replacement program going on recently, so it could be that some of the districts who wanted an electric bus already got some awarded.

So kind of some more high level statistics, we just kind of looked at the top 75 buses in each region. And so what we saw was that most of these buses are going to be 20 years or order, who are the higher ranking ones. And then also the bus type characteristics. So about two thirds of them are type D, which are the big flat-nosed ones. I have a picture on the next slide that will show

this, actually not on the next slide, on a few slides. And then Type A and Type C are requested at about the same rate, so they're both about one-sixth.

So now I'm going to get into the cost effective methodology. It is kind of appropriate that I kind of left off talking about the requested types. So two-thirds of them were Type D. This is the most expensive type of bus as well, we assume based on purchase orders that we've seen in the past.

So just kind of a brief overview of the methodology, it's just a savings to investment ratio. It's very simple. It's total project benefits over time divided by total project cost. So anything one or greater is going to be cost effective. Anything less than one is not cost effective. And spoiler alert, the ratio that we came up with was 1.15, so we determined that this is actually cost effective endeavor.

And we also want to say that this was based on some assumptions. So once we actually have these buses on the road and we start collecting data, we can kind of firm up our numbers and see across the board how correct we were. And also this methodology, we went for the most conservative numbers. We didn't want to assume something that was way off base and then we end up having all these buses funded that are not cost effective. So every chance

we got, we went with the most conservative estimate.

So it's a little bit hard to kind of compare apples to oranges, so we didn't want to take something that's a present cost like purchasing a bus and installing the infrastructure and compare it to like annual values. So I used a couple of equations. These are just economic equations that allow you to take annual values or future values and turn them into a present value cost. That's what these two equations are representing.

And I'm going to go over the variables, each one of them. But there is a report published on our website. If you go to our webpage and look up cost effectiveness in the School Bus Program, there'll be a ten-page .pdf. Appendix A goes over the equations that we used, and then Appendix B actually shows you how we used them, so that that might be a -- for anyone who's curious about anything that I may not have time to address today, that’s a good way to look it up.

So some of the assumptions for the cost effectiveness, so like I said earlier we analyzed the most expensive type of bus, which is a Type D. We used a life span of 20 years. As I showed earlier, 63 percent of the buses that were requested for replacement are 20 years or older, so I feel like this was pretty fair. 2 percent discount rate, so kind of think of this as inflation or

interest. And then I also assumed one battery replacement at year 12 of operation. We've been told around year ten is when it's typically going to be replaced. But school districts can be a little slow on that just because it can be kind of expensive to replace these. So they're going to really do what they can to drag it out as long as possible. And then the fuel efficiencies I pulled from the AFLEET tool, so this is actually developed by the National Oregon Laboratory. And then the vehicle miles traveled annually, I pulled from a South Coast AQMD report.

So this is the Type D. I also have one on the first slide. So there are more than one vendor out there who are capable of producing this bus.

So these are some costs. We assumed about $415,000 for the cost of a Type D bus. And we're including the cost of infrastructure in this as well, so it was $60,000 for that. So the total project costs are $475,000. These are present value costs. There's no need to assign any equations to this.

I used five benefits for this, so these are the defined benefits. So the first is going to be fuel savings. We know that electric vehicles are designed to save school districts money through fuel. They're more efficient, as I showed in the last slide. And so it really comes down to the cost of fueling it. Emissions

reductions, I think that's pretty straightforward. Maintenance savings, there are far fewer moving parts. In a diesel bus, you can have hundreds even thousands of moving parts. In an electric vehicle, it's less than 20 I think. Health benefits, people aren't breathing all the particulate matter emissions. And economic benefits, so I'll kind of go over each one of these in future slides.

So here are some other benefits that we identified, but it was a little harder to quantify these ones. So safety, these are new buses. We know that they're going to be safer for students. And school buses in general are actually much safer for students to travel to school than private transportation is. Grid benefits, we know that vehicle to grid is coming. We recognize that. But we're not sure what the participation is going to be on this, so we didn't want to include it in the model if it's something that's not going to be heavily adopted. Scrappage, I mentioned that this is a requirement of Senate Bill 110. And some school districts have told us they can receive up to $20,000 just for the scrap metal of the old bus. And job creation, this isn't part -- we're not the ones who are calculating this, so we didn't want to include this and then it be way off base.

So fuel savings, so the cost of diesel per gallon is a little bit more expensive than the cost of

electricity. And I used U.S. Energy Information Administration for current fuel costs in the State of California for both types, as well as the forecasted kind of rise of price annually.

So you'll see on the next slide exactly how I kind of input these into the present worth equations. And so what we ended up finding out is that over a 20-year life span, the school districts end up saving about $78,000, just on fuel alone.

BOARD MEMBER LLOYD: I have a quick question for you, is that all right?

CHAIR GORDON: Yeah, go ahead.

BOARD MEMBER LLOYD: I was a little confused as to why the discount rate would be 2 percent and these inflation rates are almost 4 percent, well 3.1 and nearly four. What was your rational for that 2 percent discount rate? Is it the cost of funds rate, as opposed to -- I mean where'd you come up with that one, the assumption?

MR. ORTIZ: Yeah so the 2 percent. I used that. That's kind of like the inflation of money over time, so if you're looking at -- so let me kind of go back a slide.

BOARD MEMBER LLOYD: Sure, but what was the basis upon -- I understand the concept, but what's the basis?

MR. ORTIZ: Of the 2 percent?

BOARD MEMBER LLOYD: What was your benchmark.

MR. ORTIZ: It's fairly standard, so that's just one that I think --

BOARD MEMBER LLOYD: No. It's not fairly standard. It depends on what's going on in the markets over time, so where did you get the 2 percent? It's just not a standard number. You have to make a decision about it, so I'm just wondering is it because that's where treasury rates are?

MR. ORTIZ: This was provided to me by one of our economists. I can ask him for what his rationale was, but --

BOARD MEMBER LLOYD: No, that's okay, because he's looking at the life of the program and giving you a number that's specific. Thanks.

MR. ORTIZ: Yeah. Okay.

BOARD MEMBER LLOYD: I appreciate that.

CHAIR GORDON: I actually think it would be good to know the basis of the 2 percent. I had that same question, so if you could ask him and just get back to us that would be great.

MR. ORTIZ: Yeah absolutely I can do that.

Okay. So back to emissions reductions. So these are LCFS figures, Low Carbon Fuel Standard. So as we can see the carbon intensity of electricity is a little bit more than diesel. But because electric vehicles are about

four times more fuel efficient, it ends up being one of those things where we actually cut down on emissions by quite a bit.

I also used current LCFS standards. So this doesn't take into account the fact that we're incorporating more renewables onto the grid, so we expect the carbon intensity of electricity to drop over time. But I used just a flat one.

Also cost of carbon, this is a Cap and Trade figure. This is also expected to rise, but I just assigned the 2 percent to it, so again going as conservative as possible, so this one isn't quite as many savings. It's about $6,000 a year. Again, this is conservatively expected to be much higher.

All right. Maintenance savings, so there aren't really a lot of studies out about school buses right now, so I had to use transit buses. It's not quite apples-to-apples, but what we saw was about a 25 cent difference between the two. In the study that cited the 88 cents and it was actually initially 62 cents they didn't take into account battery replacement. So I equated that using IEPR numbers from CEC, so they expect that in 2030 that it'll conservatively be about $120 per kilowatt hour. So using the same size battery and that cost, I came up with about nine cents per mile and added that on. So replacement is,

yeah in today's dollars, about $14,000. So again, I input this into the present worth equation and came up with a difference of about $38,000.

Health benefits, so I used a tool developed by the USEPA. It's a diesel emissions quantifier, so this determines health benefits on a monetary basis through avoidance of a lot of pollutant- based illnesses. So I have some of the more notable ones listed on this slide, but there a lot more. And this only accounts for community based reductions. It doesn't actually go into onboard emissions reductions. So we actually expect that this is a fairly conservative estimate of what it actually reduces. A lot of the internal combustion buses trap a lot of the emissions onboard, so a lot of these students are actually breathing this in as they're riding to and from school.

CHAIR GORDON: I was going to ask about the geographic scale. Do you know how big it is? Like when they say "community scale" what area does the tool look at?

MR. ORTIZ: So it's looking at the whole county and it's doing it based on population as well. So I think have the equation somewhere. But I believe it takes the amount of people and divides by the square mileage to determine that. Yeah, I can find that. I can provide that for you too if you want.

CHAIR GORDON: That's okay.

MR. ORTIZ: No, okay. So when I was setting up the model, again I was trying to give as conservative as possible. This is a statewide model. We're not looking at any particular region at the moment. So what I did is I assigned 25 percent usage to each of the four regions and I identified the county in each region that had the lowest annual health benefits. And then used that to determine just what we assumed the average health benefits could be over the lifetime of this bus. And that came out to a lifetime benefit calculation of about $145,000.

And then finally I used economic benefits, so this is provided by the Bureau of Economic Analysis. These are economic multipliers. So you can kind of think of it as if you spend a dollar on a project based on what you're spending it on, it turns into $1.45 for construction is what's actually felt in the economy. And this is local economy.

BOARD MEMBER LLOYD: Could we go back one slide? It's actually the DEQ outputs and analysis slide. I was a little slow to take in what you were saying. If two of those regions did not have applicants then why are they receiving 25 percent of the benefit calculations in your program level summary?

MR. ORTIZ: So at the time that I wrote this, or set up the model, we hadn't yet seen the applications. We

didn't know that we hadn't received any applications from them. But we also wanted to go conservative, so this is again to show that we expect that these numbers will be higher. But these were the lowest ones in that region.

BOARD MEMBER LLOYD: Right. And those regions that didn't have it were very low. So you're saying that that's again conservative, but almost to the point of -- yeah, okay.

MR. ORTIZ: Yeah. And if we moved on to the next one, to each one, I think it's actually it's -- that actually received or that submitted applications, it goes up higher. I'm not sure exactly how much.

Okay, so here's the input for the economic multipliers. So for construction we had $60,000 for infrastructure. I assumed 5,000 of that for a charger, the other 55 thousand for actual trenching and things like that. For motor vehicles, bodies and trailers and parts manufacturing, I gave the 5,000 for the charger here and assumed that only 25 percent of the actual cost of the bus was staying in state. The other 75 percent would be out of state, with 10 percent coming back. This is because a lot of the bus manufacturers are based not in California, some of them are in Canada, we have Georgia. But they do have business presence here. And a lot of the final touches are done in California.

So putting all those numbers to the multiplier, what we see is an economic benefit of about $278,000.

CHAIR GORDON: Just really quickly, because you're thinking about this, manufacturing kind of comes in here. Have there been impacts on your cost estimates or are you hearing about potential impacts from the tariffs? Because of course they are affecting other vehicle manufacturers, all over the place and we're seeing that.

MR. ORTIZ: Yeah. So we assume there are going to be some impacts of the purchase price of these vehicles, based on the steel tariffs. I believe at *STN News*, (phonetic) recently they interviewed the Blue Bird CEO and he said that they did have to raise the prices of their buses in the last quarter. So we expect that there will be some impact. We conservatively went with the price on this. We do expect that a lot of these buses will receive outside funding, such as AFIP, HFIP (phonetic) that will drastically reduce the cost of these buses.

So it should make up for that. We're not exactly sure how much it's going to affect the price until we actually see the applications for our next phased solicitation.

So I tabulated the results. So these are all the savings for each of the benefits that we identified. And what we ended up finding is that total benefits of about

$546,000. So when you compare that to the costs of the project we end up finding out that the total project benefits exceed the total cost by about $71,000 over the course of 20 years. Again, this is using very conservative numbers. We do expect these numbers to hopefully rise when we actually start getting the data from individual districts.

All right, so I want to thank you all. This is a picture of our unit that's been working on this in front of one of the Type D electric buses.

CHAIR GORDON: Thank you. I want to give folks on the phone a chance to ask questions if you have any.

BOARD MEMBER MARTINEZ: No questions here.

CHAIR GORDON: All right.

BOARD MEMBER ROSENBERG: Like Mark just said I'm good, yeah.

CHAIR GORDON: You're good, okay great.

In the room, Barbara any other?

BOARD MEMBER LLOYD: Yeah, I just wanted to compliment them on their thoroughness in which they went about and the methodology in using a lot of verifiable sources, despite my question about the discount rate. It's only because it was there to see, so thank you for that transparency.

MR. ORTIZ: Yeah. I can run this model any way

you want, with whatever discount rate as well.

CHAIR GORDON: That's good.

BOARD MEMBER DIAS: What are the costs for the CN and what's the other ones?

UNIDENTIFIED SPEAKER: CNG?

BOARD MEMBER DIAS: No, the other buses. Do you have an estimate on those?

MR. ORTIZ: Oh, for Type A and Type C?

BOARD MEMBER DIAS: Yeah.

MR. ORTIZ: They're all going to be less. Type A, we haven't gotten anything solid on that. We expect them to be about $200,000. We don't know until we actually get the applications. And then Type C I think we're expecting up to $350,000 on those.

BOARD MEMBER DIAS: Thank you.

CHAIR GORDON: Well, thank you. This is really, really helpful. And I appreciate. I echo Barbara on being happy about the methodology. It's not super easy to do this stuff conservatively, because you get a lot of pressure to do it otherwise. So thank you for doing that. It's always better.

And we look forward to seeing what happens with where people are getting the buses from and what they look like and what the benefits actually are. And we will have you back I'm sure, to talk about that at some point in the

future.

MR. ORTIZ: Any time.

CHAIR GORDON: Thank you.

MR. BARTRIDGE: Okay. Next up we have a presentation by the School Energy Coalition on the various Proposition 39 funded projects and advocacy efforts, so Anna, Nikolai and Bill McGuire if I could have you come up here to the table and speak. The microphones are on red. You have to press them to turn green and speak. And if you'd like to come up, I can either advance your slides for you or we have the clicker? Okay. And then, Darin, you're remote, so when they're finished, we'll bring up your presentation as well.

CHAIR GORDON: Hi, Anna. It's good to see you back.

MS. FERRERA: Hello.

CHAIR GORDON: I just want to say thank you to you guys and for the schools we'll be hearing from. This is really the work of this whole program has really been done on the ground and you've been a huge part of it, so thank you for all of your efforts, over the last five years and ongoing.

MS. FERRERA: We're very excited to be here, so good afternoon, Chair Gordon and members. I'm Anna Ferrera, Executive Director of the School Energy Coalition.

We're an organization that was formed in 2011, right before Prop 39. I'd like to say we were a visionary on that front, but just lucky I think. But we were seeing a trend in schools going in the direction of wanting to save energy and utility on their utility bills. So we're made up of school districts throughout the state, with a focus on better energy and water consciousness and to advocate for more opportunities and funding for energy efficiency and renewable projects on school sites.

We appreciate the invitation from the Citizens Oversight Board to provide an update on where schools are with Prop 39, which has had a tremendous impact on school districts statewide. Not only has it informed them, some of them didn't even know what their baseline energy usage was.

But also has had a wonderful experience, I think, for some of them. In looking at options a lot of them went with lighting. Some went HVAC. But others went beyond and you'll hear kind of a number of different areas where schools have had lots of use and then others not so much. And I'm sure we'll have other schools on the phone as well, because we've let our membership know to call in.

So SEC has been involved from the start, from the initiative start with its passage and implementation and then school facility focus. We've worked hard to keep

California schools informed regarding the resulting program and now, in preparation for audits. We appreciate the work and availability of the CEC staff as the program developed and amending the program to make it work better for school districts as we discovered together what tweaks were needed.

We especially call out Liz Shirakh (phonetic) and Haile Bucaneg and many others at the CEC, their Prop 39 team, for that. And more recently thanks to Jim Bartridge and Jack Bastida who staffed the Board, as you know.

I'm pleased to have three of our members here today. And I'm sure more of our districts, as I said, are on the phone. They'll share their progress so far from an individual district perspective. What are you all saying over there? Each come from different parts of the state with very different climates, so you'll get a good feel for some of that as well.

I'm also here to share that that the SEC continues to advocate for additional funding to be added to the Clean Energy Jobs Creation Fund and the state's annual budget process, which has already begun. The budget process has already begun with the new administration. As you know, the sunsets were removed from the program, through Senator de Leon's SB 110 a couple of years back. And the Legislature is free to add funding to this program

should they choose to.

When I talk to legislative members about adding funding, I give them three reasons. One, the corporate tax funding source that provided an average of 349 million annually for the five year program is still in place and is providing that additional funding to the state. It had been projected to be a billion dollars annually, if you'll remember. Half of which was to go to public energy projects, per the initiative.

The second one is data. We need to start more projects while the baseline and benchmarking data is still fresh and applicable.

But the third reason is the best reason. And we are sharing that, thanks to CEC's great record keeping and our own individual stories, we can show that projects are successfully moving forward and we are generating savings as projected. Schools have proven that the funding is sought after as school districts went out for 98 percent of the Proposition 39 award dollars.

We started our advocacy efforts last year with the budget process as the original five program years were reaching completion. And we are continuing to speak to legislators and staff about why we believe that is funding well spent and deserving of another installment.

We are including in this discussion potential

tweaks to the program and with the new demands for resiliency in the face of natural disasters and utility rate increases along with proactive outages that now will occur when weather conditions are ripe for wild fires. That schools may also look at energy and water projects that allow them to stay functional and provide shelter to students and communities.

We appreciate the Citizens Oversight Board has also included a recommendation in their reports that additional program funding is worthy -- and we urge you to continue to include this in your recommendations in the upcoming months.

So to the matter at hand, let me now introduce our three SEC members who will present today.

First we will have SEC Executive Member, Nik Kaestner from San Francisco Unified School District. Nik is the first Director of Sustainability at SF USD where he has collaborated with teachers, students and staff to develop a nationally recognized Sustainable Schools Program. His staff of five is busy promoting -- I can vouch for that -- energy efficiency, water conservation, waste reduction, green school yards and low-carbon transportation in the District's 180 sites. Since Nik was hired, SFUSD's energy usage has dropped by 30 percent. Water usage is down 28 percent. Waste diversion has been

doubled to 66 percent. SFUSD has been recognized as a green ribbon district by the U.S. Department of Education and received the best of green schools award for industry transformation from the USGBC's Center for Green Schools, the Green California Summit's leadership award and the Green Culture leadership award at the California Green Schools Summit.

Next, we'll have our esteemed SEC Chair, Bill McGuire from Twin Rivers Unified School District. Bill is the Deputy Superintendent of Administrative Services for Twin Rivers where he oversees business services, communications, physical services, general services, human resources, information and education technology, nutrition services, police services, purchasing and transportation. (Laughter.)

This is how we roll in school facilities wearing very, very many hats, which is why this has been such a wonderful endeavor and very helpful to our school districts.

In addition, Mr. McGuire has held the position as CBO and Assistant Associate Superintendent at four other school districts. And Bill is the recipient of the Association of School Business Officials International Pinnacle of Achievement Award.

Third up will be SEC member, Darin Vey, from San

Diego Unified School District. Darin is the Energy Utilities Program Supervisor at SDUSD, consisting of over 200 sites. SDUSD is the eighth largest school district in the nation and the second largest in California. Mr. Vey leads a team of energy coordinators, management and recycling specialists. Mr. Vey's team implements energy saving projects funded by Prop 39. His team also coordinates demand side management, utility budget forecasting, implementing conservation projects, ZNE and solar programs.

Currently SDUSD manages 37 solar sites with 20 more solar sites being installed this year. With over 20 years of management experience in the energy and utilities industry, Mr. Vey had the position of Energy Conservation Manager at Carlsbad Unified and Fallbrook Union High School Districts.

So now, let us begin today with Nik from SFUSD.

MR. KAESTNER: You know how it is.

MS. FERRERA: Yes, welcome Nik.

MR. KAESTNER: Thank you, Board Members. I'm excited to be here to share what we've been doing at San Francisco Unified and to help you understand how Prop 39 fits into that bigger picture.

So, as you know we are a dense urban school district, the seventh largest in California. We have

55,000 very diverse and mostly low-income students. Voters can certainly support the school district and its facilities' efforts, although I should note that about a quarter of the students in San Francisco do not attend SF Unified.

Our schools look mainly like this. They can be 100 years old, some 60, 50 etcetera. We have very few new buildings. That's something to keep in mind as we're trying to think about how to improve the efficiency of our building stock.

We have a municipal utility in the San Francisco Public Utilities Commission that provides electricity and water. And the PUC is engaged in a lot of water and sewer projects right now, and has decided that it needs to start recovering more of the cost of producing power. So as you can see our water and electric rates have been going up recently, which provides somewhat of a mandate for us to improve the efficiency. For many years we were paying 3.75 cents a kilowatt hour and so the drive to do a lot of this work wasn't there, although I will credit the City of San Francisco for hiring or for creating my position back in 2008, long before these price increases were being discussed.

On the gas side, as you know, there's a lot of things happening with natural gas across the country right

now. So those rates tend to fluctuate. Right now we're in a period where the gas prices are a little bit lower.

But as a result of these price increases we're definitely interested in how we can improve the efficiency of our building stock. And to keep costs down we like to do that as part of our normal modernization cycle.

The outer ring here represents kind of your big bond capital projects. The inner ring represents facilities-driven deferred maintenance projects that we might do on a one-off basis. So instead of going out and essentially implementing Prop 39 through a particular project manager with a particular mandate, we've decided to actually add funding to existing projects and therefore add scope. And that scope will help bring the energy use of those projects down.

So that was kind of a first round of Prop 39 projects, which included separation of domestic hot water from the space heating systems, so that the hot water could run independently; adding occupancy sensors to Visitacion Valley Middle School. At El Dorado Elementary School we replaced the boilers entirely including the piping system. And we added refrigeration in the kitchens. And at John Yehall Chin Elementary School we also installed condensing boilers, new fan-coil units and a water heater.

So classic efficiency work, we saved about 23,000

kilowatt hours. We're projecting to save 23,000 kilowatt hours and 2.1 thousand therms or about $3,700 a year.

So these are great projects. But at that point, our Governor decided that he wanted to increase our leadership as a state in terms of tackling climate change. And what that means for us, remember our building stock, is that 50 percent of existing commercial buildings should be retrofitted to ZNE by 2030, a very ambitious goal. In fact, much more ambitious than the goal for new construction, because we're designing ZNE buildings right now and we have until 2030 before the code that will likely mandate commercial construction in ZNE.

So as a district we thought how are we going to prepare ourselves for this future world by changing the way that we do business right now? And what we've decided to do is to first look at how our previous bond treated the topic of energy. As you can see in this graph the dark purple lines are the post modernization energy use intensity of the buildings that were part of the 2011 bond. And the light purple lines show you how much energy they were using before.

From the top half of this graph, you'll notice that a lot of our buildings significantly dropped their energy usage just by virtue of the fact that they were meeting code during the modernization process. And for

those of you who know what EUI means kBtu postscript (phonetic) or per year, a lot of those buildings actually dropped down to the EUI of 20 or even lower. And admittedly that is partially because we're in a very mild climate. That's also why we have higher energy standards than you might expect if we were the Tahoe Unified School District.

The bottom half of the graph though is obviously cause for concern, because some of our buildings increased their energy usage as a result of modernization. Mostly not by a large amount, but the one at the bottom, Creative Arts Charter School, almost doubled its energy.

So we decided to look to the DOE to provide guidance for what kind of an energy target we should use in San Francisco Unified. For elementary schools DOE recommends 21.6 kBtu/$ft_{2.}$yr and for a high school something on the order of 19. So we split the difference and basically mandated that all new construction needs to have an EUI of 20 kBtu/$ft_{2.}$yr.

The other thing we did is we modeled how we would achieve zero net energy-ready buildings in some of these new modernization products that are part of the 2016 bond. And what we noticed is that the two biggest impacts come from the switch to LED lighting, which is a no brainer nowadays, because the controls are so much cheaper. So

it's actually the most cost effective way to do lighting. And then at the very end of the far right side of the graph you can see that switching to electric heat pumps or VRF systems is also essential for us to get below that pink dotted line, which is the top of the two dotted lines. That's the EUI target of 20 that we've set for ourselves. So basically the name of the game is electrification, in San Francisco, at least.

We also discussed -- I'm not going to go into detail here, but we discussed all of this project of getting to ZNE-ready status by 2030 with our Buildings and Grounds Department. They pointed out that all of their staff is not equipped to deal with electric heating right now, so we need to manage this transition slowly. That's why a lot of our focus was intended to be on lighting and envelope measures first that reduced the load. That would give us time to have boiler guys retire and electric heat pump guys join the shop.

We also noticed that renewables for us, because we obtain our power from the Hetch Hetchy Electric Power System, renewables is not a priority. We're not putting solar like crazy on all of our rooftops. There's two reasons for that. One again, is that our power is clean right now and secondly that because of a low electric rate none of the PPAs, and that because of a low electric rate,

none of the PPAs and those similar mechanisms will work cost effectively for San Francisco Unified. We do think that as our electric rate goes up that those kind of financial mechanisms will allow us to localize our energy production. And that will allow Hetch Hetchy Power to go onto the grid and help green other customers.

Well, finally just to sum up here our Carbon Reduction Plan was our public facing (phonetic) document that describes our process and where we've landed. We also have a separate document, our district-wide Owner's Project Requirements, our OPRs, which are an eight-page document that we give to every architect to explain how we want them to design our buildings.

And then the Board of Education adopted a resolution that basically called for the school district to eliminate all fossil fuel emissions by the year 2040 and we're working towards that goal, as you've already heard from Anna's introduction.

The reason I mentioned all of this is because the way that we're doing Prop 39 now is different from the way we did it before. We are still piggy backed on existing projects, but we now have a new internal goal that we're trying to meet. And so we will do projects like LED lighting, lighting controls, windows, heat pumps, these are projects that move us towards our ZNE goal as defined

through our energy studies.

We're a little more cautious, and I don't know why I broke it down this way, but a little more cautious about doing those items in orange, which are improvements to existing gas based heating systems. We will do those to improve the efficiency of those legacy systems when we think that those systems will still around for a decade or so. But if it's a gas-based heating system we think we might replace in two or three years we're not going to put a lot of money into that system. And then as a result of our electrification efforts we're absolutely not putting in any new gas boilers, which did, you'll remember, in our first round of Prop 39 projects.

So we're moving away from how do we improve the efficiency of buildings and moving more towards the lens of how do we get to our zero net energy goals? And that has completely changed the way that we apply to our projects. The rest of the projects, I think we've had another four applications come in with 475,000 kilowatt hours or 26,000 therms. We hope that will save us about $60,000 a year.

So I think that was the last slide. I did have one that unfortunately was hidden in the PowerPoint, just to explain that we were not able to take -- there it is -- were not able to take advantage of the school bus dollars, because we don't own our own fleet, but we're working on

incorporation electric vehicles into our contract with our current vendor.

And the other thing I want to point out is, that's not on any one of these slides, is that we have spent every year some funding from Prop 39 for an Energy Manager. And that Energy Manager has provided invaluable benefits throughout the last five years. And it's not just about coordinating our Prop 39 process. Once you have a staff member whose mission it is to reduce energy usage you find energy waste all over the place.

We now have regular reports to Buildings and Grounds about leaks that are happening thanks to our data collection tools, which our Energy Manager created. We have reports going to Buildings and Grounds about energy waste, like fans that might be running or not. So we're constantly making adjustments on the fly. And fortunately, as you probably know at the end of next July the funding for Energy Managers goes away. So this is just a quick plug to remind you that as we start looking at how the Legislature might fund that program in the future, the people are actually I think in my opinion, way more important than the projects. Because a lot of schools will have bonds that can pay for the construction piece of it, but what we need is somebody to coordinate the process. And if we want other districts to start thinking about zero

net energy and just take these longer timeframes, look at them in longer timeframes, I think that it is a mistake to just focus on project completion.

So with that I will finish. And I'll thanks for your attention and at the end I guess I'll have time to do questions.

CHAIR GORDON: That is great, Nik. Thank you.

And actually just a quick question right now on your last point, my understanding just from other presentations we've had is that one of the things about Prop 39 funding is unlike bond funding and some of the other funding from the state, when you have energy savings from some of these measures, you can actually put those savings back into your operational budgets or your maintenance budgets, right?

How are you thinking about what have you done with those savings and is there some potential to use some of that for ongoing energy management?

MR. KAESTNER: Theoretically or conceptually, yes that's true. It gets to be a little messy because the utility budget, as provided by the district office, will change based on need. So getting the district office to agree that it will keep the utility budget at the same level that it was last year and that basically you as a facility department get to keep the dollars that you won't

need to spend next year, has been an uphill struggle for us.

And I think part of it is that fiscal officers are very conservative. And so even if they can understand your logic, that money is really money that was created through the Prop 39 Program through other efforts that were taking independent of Prop 39, I think it has been difficult for us to guarantee that that funding will come back to us.

Having said that, our Fiscal Officer has been very impressed by our ability to understand the utility database, and has basically assigned utilities to the Sustainability Office in San Francisco; it used to be somewhere in the Budget Office. So I think we are at least slowly winning her over and explaining the importance of having some of those dollars come back to us, so that we can do more of this work. But you're right. In concept, it's true.

CHAIR GORDON: Thank you. I know that game, having had the same thing happen with foundation funding for nonprofits, so I get it. Just since I disrupted everything and asked a question, any other questions from the Board to San Francisco before we go forward?

I'm excited to hear about Twin Rivers, I feel like you guys are like a -- we hear about you a lot.

You're one of the success stories of Prop 39.

MR. MCGUIRE: I like am upset that we're following Nik. (Laughter.) We don't look that good. We don't have that --

CHAIR GORDON: No but you have more titles than he does.

MR. MCGUIRE: -- kind of money. We don't' have any of that stuff. Wow, I'm like just going to go home now.

So Twin Rivers, as you know, 27th largest school district in North Sacramento. We have 26,000 students, speaking 46 different languages, 3,000 employees, 52 schools, the same as a lot of schools in comparison as we go through that.

But when we think about just totally Prop 39 as a whole is $8.5 million, including our charter schools -- I've been before you before to talk about charter schools and how they are not separate entities and they need to work collectively with the school districts -- and we were able to do that with all of our independent charters and work together to implement some great things.

Our average age is 45 plus, so now I feel good that we have an 84-year-old school, since he has a 100-year-old school. So I'm not going to complain about that anymore. We also are partnered with SMUD and CCC. In

relationship to that, I had a great partnership during all of Prop 39 to work with.

Unfortunately, Twin Rivers doesn't have bond funds or other things and what we went with was the biggest bang for the buck, not lighting, not other things. We really invested heavily in HVAC and used all of our available funding to match the Prop 39 money. And we're very creative in doing that. That said, we did do control and lighting at places where it made sense, but really we're one of the first and heavily invested in HVAC work.

And some of those schools are Grant and Harmon Johnson at Foothill Ranch Middle School, which are their very large projects. And when we go to the did we save money? The answer is no, because they had a working system, so they started using them more. And but the good news is it provided a safe and secure, warm and dry environment for the students.

Again, especially with our charter schools, we have seven charter schools that are depended in Twin Rivers and seven that are independent. Of those, as you know, the charter schools would get an individual grant, but they are in our schools. And so we worked very hard this last two years to collectively work together to utilize the funds in the most efficient way possible and entered into agreements with the charter schools to facilitate all of the

improvements on their behalf. And did all of the purchasing, all of the contracting, everything for the charter schools.

And that work is in progress. And you can see we also have continued with other schools, Del Paso Heights Elementary, Fairbanks, Foothill, Hagginwood and Hazel Strauch. And so clearly you can see that what we were trying to do was impact full schools in the HVAC realm anyway that we could and also do the lighting. And of course we had to create a team for that, which feeling the difference created a new climate in our classrooms. And we gave a lot of credit to Prop 39 to be able to do that.

Just some results in relationship to Harmon Johnson and Grant, you might remember five years ago we were in the news about not having any heating and air in those schools. And so we are appreciative of that, that we do have them based on leveraging Prop 39 dollars to make that happen.

And most importantly, that all of these projects that we are talking about happened in the summer over a ten-week time period. These are not projects we were coming in and doing them during the year. We had a very finite, over the last five years, tremendous effort. And when you're doing that in a 10 week period, there's overtime. There's lots of employment to make that happen,

with the results of that.

Continuing down that thought process of Prop 39 and some of the things that are coming to the future, Twin Rivers currently the largest fleet deployed in the nation with 16 zero energy buses and we work together with the Air Board and a variety of other things to bring those 16 buses together. We worked with SMUD, who provided a grant to put the installation in. And as you heard this installation is a big deal. Having an electric bus without a way to charge it doesn't make a lot of sense.

We, like San Francisco, have a local municipal provided utility district and our rates are lower than most, so solar and alternative doesn't pencil out for us. So it's big deal that SMUD came to us and came to the table and said we're willing to help you establish these stations for the 16 buses that we have.

And more importantly, we're really excited -- well we're disappointed that our school buses are on the top of the list and scored out with scores of 98, like second or third highest in the State of California. In the northern region, we have 15 school buses that scored at 80 points or more. And so we're really looking forward to expanding that fleet with the next phase of the work that CEC is doing relative to zero emission bus programs. And our Director of Transportation, Tim Shannon, has been

working very closely with CEC because of the experience that we had. And it's a testament to CEC, they're reaching out to the field and getting input from the field about what's really happening from those that already do have electric buses.

But with that as Anna said there's a lot going on out there. It just doesn't stop because Prop 39 funding is still within the state budget. You know me, I'll tell you the truth. And somebody else is taking it away to solve their problem rather than save our problems, right? And we probably need to point out to them that that $500 million is just solving someone else's budget problem or giving somebody else additional funding rather than schools.

But as part of that, we have Title 4 Regulations. We have zero net energy. We, in Twin Rivers, are never going to get there. We will never get there with the fact that we don't have a facilities bond. We're not going to have one on the ballot for years to come. We don't have additional funding. We are, and I'm just like his financial person that won't give them the money, because we have to balance our budget based upon STIRS and PIRS (phonetic) increases and all those things that take every dime that we can have.

And so this idea of zero net energy without advanced stated funding will never happen. And for the

governor and anybody who thinks it is going to, it's a pie in the sky without funding to help us do it. Schools do not have the funding to be able to do this unless they're diverting funding from another area. It's a great concept, great thing that we should do, clearly I do believe in it 100 percent. But it won't happen without that.

And the idea that quite frankly our rates are still going up and whether we're in the PG&E territory or not, as rates go up our ability to pay for those things are going to go down as we go through that as part of it.

Also, things that we've got to be talking about is water supply, drinking water. We've, in fact had Grant Union High School water system closed down for the last four months, because of lead in the water at Grant Union High School of course, because it's 84 years old and a variety of other things. But all of these things are out there with no ability to have any resources rather than what we have to handle.

So you can imagine thinking about Grant Union High School in 1934 right, and then redoing all the pipes in that school because there's lead in the water. So we're currently providing bottled water for every student at Grant, because of that. That cost would be millions of dollars to us to re-pipe that with no bond, no assistance, no anything. How are we going to be able to do that? Now

again, we're going to come up with solutions. We're going to make it work. But we all need to realize that this is going to happen not just in Twin Rivers and not just at Grant High School, but every school in the state that is in that age of 40 years old and the different issues that happen.

And so it's costing money to have bottled water there. It's costing us money to test and test and test and retest and fix things along the way until we can resolve that issue. The good news is we do believe it was resolved. And I come here every year and tell you all these horrible things that are happening to us. (Laughter.) And I'm more than willing to do it in the future, but I don't think Anna is going to ask me back.

CHAIR GORDON: Thank you, Bill. No. It's always a pleasure to have you here. I think it's just for those, particularly who haven't been on the Board as long as some of us, these presentations are -- and I think San Diego will be the same -- really underscore some critical things that people often forget, which is one, many schools in California have not had a bond on the ballot since 1983. I think we did a study back in the day. And don't have any real hope of having a bond on the ballot any time soon. And so we think that facilities bonds solve all these problems, but in fact many places do not pass facilities

bonds. And they are off in the small rural districts, right? I mean, this is what happens.

The other thing that you underscored, and we've talked about a lot as a group and we thought about a lot with CEC in the early days, is this issue that you had of using more energy when you do the fix because you put in HVAC when there wasn't HVAC, right? It was a real point of discussion in the early years is the program and something that was eye opening for all of us too, that that was -- you can't have a kind of a one size fits all approach, because these schools are radically different from each other. So I think it's always incredibly helpful to hear that perspective. So thank you and you've done an amazing job with the money you've gotten. So if it was up to us, we would have put more money into the program, so we're trying.

Other questions for Bill from the Board on the phone, anybody? I also didn't turn to you regarding San Francisco yet, so do you have any questions before we hear from San Diego?

BOARD MEMBER ROSENBERG: I just have one question.

CHAIR GORDON: Yeah. Is that Heather?

BOARD MEMBER ROSENBERG: This is Heather. Yes, hi. You listed microgrids on the list and I'm thinking

about emergency backup water and emergency power. Do you have projects underway or plans to move this forward?

MR. MCGUIRE: We currently do not. But we know that it's going to be an issue. And so we've got to think about how to address it when it hits us.

MS. FERRERA: This is Anna Ferrera. I would say also that is a broader discussion that's going on for many schools as we have more of these demands on the school sites, is looking at resiliency, energy battery storage, all of those things that may make us able to keep the lights on should an outage or a natural disaster occur.

CHAIR GORDON: So school sites as emergency shelter or something. Yeah, right. That's a really important point.

Barbara, did you have a question?

BOARD MEMBER ROSENBERG: Thank you.

BOARD MEMBER LLOYD: My only question is probably to Jim, is are we able to get a copy of the (indecipherable) after.

MR. BARTRIDGE: Yes, sorry. I got that one late Friday. So I'll get that posted to the web right after the meeting. And I'll email it out to the Board.

BOARD MEMBER LLOYD: It was interesting enough I wanted to be able to refer back. Thanks.

MR. BARTRIDGE: Very good.

And we did have one question on the phone for Nik, but let me hold that question and let me hold that question and let's go to Darin Vey, Energy Utilities Program Supervisor at San Diego. So Darin if you're on the line?

MR. VEY: Yes.

MR. BARTRIDGE: Okay. And I'll go ahead and advance your slides for you, so just give me a yell.

CHAIR GORDON: And just sorry, a good reminder from Jim, we will have the ability for comment after Darin's presentation on any of these presentations. And I forgot to call for a public comment on the school buses, so on the school buses as well.

MR. VEY: Okay. Well thank you so much for enabling me to -- and I'm getting a lot of echo. I don't know if that's a problem or does everybody else hear that on the phone?

CHAIR GORDON: You sound fine to us actually.

MR. VEY: Okay.

MR. BARTRIDGE: I can hear the echo as well.

MR. VEY: Yeah. I'll just try to ignore it and not listen to myself talk. Okay.

So the Prop 39 Program Update, I just wanted to thank the committee for enabling me to speak and talk about what we're doing here in San Diego. I thought that San

Francisco and Twin Rivers did an awesome job and what they presented. We were told to have about five or six slides, so I did that. And so they have more than that and that's okay. I'm going to talk through most of our numbers and what detail we have in our information.

And the first thing I wanted to discuss is where we're at with the program. We're somewhat unique where we have hired full-time energy coordinators to do the full program, ever since 2015. And there are still employed. They're more playing a project management roll at this point getting the projects built, as opposed to doing the plans and getting the funds and doing the energy manager side of it.

They are still working it and it's been going well. We are on track to finish, and as long as our contractor gets everything done they're supposed to get done, we'll talk later about some of the challenges that we've had. But we're pretty excited about the results we've seen so far. And some of the things I've noticed with San Diego, with San Francisco, I mean, is that he was saying that they had about eight cents per kilowatt hour. And gosh, I wish it was that low here. We're looking at a blended rate of about 29 cents a kilowatt hour in San Diego. It's one of the highest in the nation.

So our paybacks and our effectiveness and our

programs are a lot more dramatic, because we're able to save that much more every time we save a kilowatt. So let's keep that in mind when we talk about some of these numbers. So would you go to the next slide please? Thank you.

So as Anna did in the introduction we have over 200 sites, that doesn't include charters, with over 100,000 students. With charters it's about 130,000 students. We're the second largest school district in California and we have a lot of people calling us, saying they want to do business with us. And we do get a lot of calls. I know I get a lot of calls and it's pretty time consuming. But because we're a big target we have a -- you know, you saw the dream big picture on the previous slide. We have a very supportive Board that did an initiative back in 2013 to "Dream Big on Sustainability." Thank you for going back, so that's really their slides and their graphic that they put in there.

But this Prop 39 just so happened to come out right when they were doing this initiative. And it was really good timing because we as a Board, they knew we had to be more sustainable. They came up with several measures that included solar and ZNE and very forward thinking. And so we just took the Prop 39 Initiative and implemented what they wanted to do as a Board. So we did that. Could you

go to the next slide? Go back one. Okay thanks.

So we spent about $19.4 million in energy spend last year, which is about 75 million kilowatt hours. It's quite a bit. And we are one of those districts that's adding HVAC like it's going out of style. I mean we're putting so many in, thousands and thousands a year, and we're about 75 percent there. So we got more to go. We're supposed to be done by 2019.

But ironically we have seen the kilowatt hours go down, because of various reasons. But a lot of it has to do with the Prop 39 projects offsetting that increase in load as well as we are putting up PV solar. We do have bond funding that they're doing for that, but the bond funding as you were talking about, is very specific to certain kind of projects, like they'll use it for doing stadiums and new HVAC.

And then they saw my concern which is hey, HVAC is going to add quite a bit of load here, you guys. And instead of paying $20 million a year we're going be spending more like 30 million a year before it's all over with if we don't do something. And they agreed and they said, "All right, so we'll put in these million-dollar solar projects using bond funding to help offset the cost." And it has helped although the rate in which they're putting HVAC in is a lot faster than the rate that we're

putting in solar. For example, we've put in close to 4,000 units just in the last two years, and just in the last two years we've put up eight solar sites.

So it's not enough to offset the load. And I know I like the model. It sounds real good, but it's a cash flow problem. So since I'm the one that manages the budget and does the forecasting and all that, I have a lot of pluses and minuses when we try to figure out well what are we going to spend next year. And I'm usually wrong, because it's really hard to guess the weather and the HVAC going in and the solar and so forth, so it's really an interesting phenomenon that happens there. So could you go to the next slide? Thank you.

So the CEC approved 98 projects on 59 sites. So just to give you an idea we're getting about 25 percent of the sites in our 200 sites that we're penetrating, when we do the Prop 39 Fund. That represents about $25,336,149 dollars that we're allocated for the five years, so some of that money goes towards energy managers. Some of that money goes towards auditing. And most of it goes towards the projects.

So we have six full-time district staff exclusively on Prop 39. And you know, as Bill was talking about having an energy manager, and I think Nikolai mentioned it as well, it is paramount that we continue to

fund energy managers, because if the bonds don't fund them -- We do have a bond program, but it doesn't pay operational costs. And so we have to deal with that. What do we do with these people? They're very good at what they do. And if we continue what we're doing since we only have 25 percent penetration into our district so far, dealing with energy projects, we have a long way to go. And these guys know exactly what the sites are, what next we would do if we had more money and so forth.

We expect to save about 5 million kilowatt hours with our projects and we expect to save about 1.4. That's very conservative. We think we're going to do more than that, depending on demand charges and that.

We've created 119 jobs and with what we expect to do on CO2 offset is about 4,000 metric tons of CO2 that won't be expended into our precious climate here. So that's kind of what the numbers look like as a whole. Next slide, please.

A lot of the projects that we spent is LED lighting. We've put in about 32,000 fixtures in classrooms, libraries, admin building since 2016. We spent about $9.1 million on just doing interior and exterior LED lights. We did receive over $2 million in rebates from SDG&E. That money went back into the program. And we used that to help fund more projects. We get about 19 percent

savings when you have the HVAC. That's how much savings we're seeing with doing off the bill itself, the whole bill to the site, when we do LED lights.

As a measure, it's over 50 percent if you looked at just LED lights and how much it saves.

Exterior lighting is another area. We're doing about 11 sites, doing exterior lighting. Those are going to be done by 2020. And then we do use some district labor. We use our in-house people to do some of this work as well as some contracted labor to do that. Next slide.

A big portion of what we're doing is we're replacing 20-plus year old HVAC units. Some of these are rooftop units, barred units, just replacing them with a higher SEER rating. We're doing that on 22 sites. We're doing the design this year and we're installing this next year and into 2020. So we're going to go right up, probably right up to the June of 2020 deadline date, just because of other reasons that I'll get into later.

HVAC controls is a big part of it. We use a centralized EMS system. And being able to centrally control our air conditioners is key, making sure that all the set points are set right, that the schedules are in right. We're shut down over holidays and breaks and summer and so forth, so having that control really saves us a lot of energy.

And they are putting in standalone thermostats in some of the bond projects and then we are going in and augmenting that with an EMS type setup. And that's because mainly they just put it in and make it operate and then leave it up to operations to deal with how they want to have it hooked up and operate to the EMS. So we're working through that. Next slide, please.

So some of the challenges that we ran into, the RFP process was a lot longer and a lot more complicated than we thought, the contracting process and it's mainly to do with this district. Every district is a little different, but this one's really big and there's some bureaucracy and some hoops to jump through. It just took way too long. And therefore, we ended up doing a lot of our projects this year and next year. So we are concerned about the time to complete installations by June 30th, 2020. I mean we have the projects being in design. Some of them are going through DSA. That does take time to get through all that.

And then the reliable and consistent data is also another challenge from our IOU. They've been having some problems with their programs and what used to be a downloaded system. They've provided a computer program and now they're having problems. And it's not reporting all the time. And so we're trying to get our best marking as

accurate as possible, but unfortunately, we've been having challenges in that area. We're trying to just get some good data out of the IOU has been a challenge. And we're working with them on that and they've been very helpful, but I think their hands are tied too with the CPUC so they say.

So if we got additional funding, let's say that the 110 Bill would be funded, the goal would be to take the remaining 80 percent of our sites for interior and exterior lighting and just get that done. Like the other guys were talking about it's quick. It's probably the fastest pay off that you can do on a project. And we would take and basically see that 19 percent savings. So if we're spending close to $20 million, and if you saw a 19 percent savings across the board, do the math, you're looking at just under $4 million a year that's sustainable for our district.

Additional ZNE projects to reach our 50 percent 2030 California goal, I think Nikolai mentioned that as well, that we need to make that goal. And to do that realistically 50 percent of our buildings is about 100 sites, if you do the math we're looking at about 8 to 9 sites a year. That's almost one a month that we would have to do in terms of to reach that goal. So I just don't see that happening. Either we change the goal or we throw a

bunch of money at it because realistically, if you do the math it's very difficult to reach that goal, especially in a district this big.

I mean we can do our best. We do have a ZNE project and pilot that we have through SDG&E over at Vista Grande Elementary School. And we're putting in almost $2 million into that ZNE project, but it's placing the chiller, putting in solar, we did interior LED lighting, exterior LED lighting. Everywhere we can reduce the load and we expect to get about 14 kBtu/ft_2 on that site once we're done with it next summer. So we're pretty excited about that ZNE pilot. We'll probably get some press on that. We're hoping to get some good news on that one.

The remaining 78 percent of the sites for PV solar generation, not every site can have solar. There's some inner city schools that don’t have much parking and they don't have much roof space. So real estate is a problem and solar doesn't solve everything. So we're going to have to do some stuff beyond just doing solar generation. We're looking at batteries. We're looking at fuel cell.

But I think the biggest thing that everybody so far has not really kind of talked about although Bill mentioned it a little bit in his presentation was what we call a Staff Behavioral and Student Energy Savings Program.

This is where you -- and I did this when I was at Carlsbad Unified and at Fallbrook. You basically say, "Okay, staff. Here's the things that you can do to save energy." And we have almost 13,000 people on our staff. And we predict that if everybody did what they were supposed to do to save energy, and met the energy goals, that we can save anywhere between 15 and 20 percent of savings just on behavioral and student energy programs.

So we like to get students involved. We send them data. We share the data, the benchmarking information. They do analysis on it. We show them how to do the technical side of it. And then the teacher obviously gets involved, because we're not teachers. But we're more operational guys. And then we provide that information to them so they can see wow, we're using a lot more energy than we thought, especially since we added these air conditioners. What have we got to do?

And one of the things that we've discovered is for years and years and decades they didn't have air conditioning in a lot of these coastal schools, here in San Diego. The weather's real nice here, so they really didn't need it. Well, you know, the weather's getting hotter and everybody else on the coast has HVAC and so hey, we should have it too. They're outfitting 100 percent of the district in air conditioning.

By doing that, these teachers are used to keeping their doors and windows open to bring in the fresh air over the years. And now slap in air conditioning. That behavior doesn't change. And so now you have a bunch of air conditioning running with doors and windows open and so there's some things we have to do to ensure that they save energy when they get these new systems. And this is something that the energy managers would do and we do have a plan for that.

Benchmarking software is a challenge, trying to get -- because we have so many sites and so many different uses and a lot of moving parts. Being able to measure that and measure it with effectiveness, we need to do a better job at our district of getting benchmarking software and analysis tools. And they're not cheap and it does take operational money to do that. Bond funding typically doesn't pay for that.

And then the other thing is, because we're having reliable problems with IOU we'd like to put in our own automatic meeting reading sub-meters for better accuracy and actual use. So we can get a better job of measuring what we're doing in particular buildings and particular use areas.

So that's kind of what we'd like to with additional funds and how we could spend that and spend it

in a way that we can save up to 20 and maybe up to 30 percent if we do a behavioral program between the equipment and the staff doing what they're supposed to do. So that's our goal and that's what we're trying to head for.

And we just really appreciate the opportunity to talk about what we're doing with our program and let me know if you guys have any questions.

CHAIR GORDON: Thanks, Darin. That was a great overview. It's such a radically different three school districts, that was a great reminder of how different things are in different places.

I could see Bill's face when you said you had six full-time staff. He was like what I could do with six full-time staff. No that was really great. Thank you.

MR. VEY: Well, thank you for explaining his face, because I didn't know what his face looked like. (Laughter.) I appreciate that.

CHAIR GORDON: It was yearning, I think is the word.

All right, so I know we have a question from the phone. Is that right, Jim?

MR. BARTRIDGE: We did have a question for Nik, from Jay, who asked if you could explain how electric heating is more efficient than natural gas. And I'll let you answer that while I look for the next presentation.

MR. KAESTNER: Well, we really should have somebody from the CEC explain this, but in a nutshell it used to be that when you said electric heating you were referring to electric resistance heat, where the heat is being generated by a coil. And when you compare electric resistance to natural gas-based heating like a furnace and you account for the fact that you have to generate that electricity at a power plant that might be operating at 33 percent efficiency, electric resistance heating, i.e. electric heating, use to be less efficient when looked at on a systems wide perspective.

Heat pumps do something different. They actually take heat from one location and move it to another and so for every BTU of heat that they move, they actually only use like a third or a quarter of BTU of energy to do so.

So whether we're talking about a heat pump water heater or a heat pump space or a VRS system, a variable refrigerant system like the ones that we're putting in now, the economics has now flipped so that electric heating is actually more efficient than gas heating even when you include the climate emissions of generating that electricity. And of course as our grid gets even cleaner, as San Francisco is using Hetch Hetchy Power we have even one more reason why electricity is kind of the preferred climate option now.

It's a very good question, because it definitely was not the case if you asked the same question 10 or 20 years ago.

CHAIR GORDON: Thanks for that question.

Board Members, including on the phone, questions for any of these, Adrienne?

BOARD MEMBER ALVORD: So I was really intrigued when, Mr. Vey, you were talking about staff behavioral elements. And Mr. McGuire talked about feel the difference, which it looked like the sort of a way of trying to communicate some of this. And I know we're primarily looking at cost and energy and carbon performance. But I wondered whether and how your respective districts had communicated these projects to the school community? And what kind of response you're getting from the community, teachers, students, parents, if there's a fair amount of awareness.

I would imagine it varies from school-to-school, depending on the level of project intensity. But I'd really love to hear about that.

MR. MCGUIRE: Well it does vary from school to school and you can see with 53 schools, we did not touch 53 schools and even in San Diego where there's 200 schools. So we're not doing systematic approaches across them. We have an energy specialist, energy management person, who

does the same thing as their six. Only how can he get out to 57 schools and preschools and make it all work?

So the environmental issue relative to staff training and organizational behavior, with that the issue is always that's the first thing we should be doing. That's always the first three legs of the stool. And we need to reduce consumption first and we can reduce consumption with organizational behavior change. Then you do everything else.

The problem is that is the hardest one to do. So they were commenting about the teachers who leave their door open in San Diego. Teachers have air conditioning running and leave the door open when it's 110, right? In Sacramento, it's just things that happen. And so with that, if we could do that first that should always be done. That should be done before any renewables, because then you're right-sizing your renewables, not doing it for way up here, but way down here. Again, this is the hardest part.

This part is the easy. It's easy to change out lights. It's easy to change out equipment. It's much harder to change people's behaviors within any governmental system.

BOARD MEMBER ALVORD: Well, before I hear from the next one, I was remiss in not saying that I really

appreciated all of your very detailed and rich presentations. So thanks for that.

MR. VEY: Yeah and I'd like to add to what Bill was saying. He's right. You know, it's very hard to do that. The good news is it doesn't take a lot of funding, except to pay people to do that. And there are systems and very predictable check lists and processes to make this happen. So again I've done it before in other districts. I know it works.

The tricky part is, is we haven't done it yet with Prop 39, because Prop 39 funding doesn't support that. We're supposed to be doing projects, not behavioral programs. So even though I know how to do it and we even have the people in place, that funding if you look at the regulations is very specific, and says no. I even talked to the Commissioner. It's not really meant to do behavioral programs. You should be doing projects with it and using project money, so we haven't been really doing that.

We did a press release with the ZNE pilot, with SDG&E over at Vista Grande Elementary School. We did that. The staff was interested. The students are interested. But it's very little. And that was more of a just of a PR thing, so we're really limited in what we can do with Prop 39 money. Therefore if we do move forward and fund another

round of this, I think we should put in a behavioral element into this, because it's an important part of like what Bill said. It's the three-legged stool and there might even be a forth leg, which is batteries now.

And so I just wanted to give you some feedback on why we haven't really pushed that to date.

VICE CHAIR GOLD: This is Mark. I wanted to ask sort of a follow-up question on that.

So for the 3 great presentations on the school districts, so from those representatives I'm just wondering with the installation of all the HVAC units and the LED lighting, etcetera, what are you doing or what have you done to sort of optimize the efficiency of those systems to ensure that you're using minimum electricity, and definitely only when on the students and the faculty and staff need it, as opposed to running all the time?

And I'm bringing that up, sort of bringing up my own university. As it's pretty surprising just recently we've, five years ago started shutting down over winter break. Shutting down a lot of our systems in laboratories overnight that didn't really need to be on. It took us a long time to get there. I'm just wondering what you guys are doing to sort of optimize that system now? You're not required but obviously it's in your financial best interests.

MR. VEY: Yeah, so with San Diego Unified we have, like I mentioned before, an EMS solution where we go in and we set schedules and for the ones that we can control and we go in and optimize that. We do shut down for like -- we shut down for Thanksgiving break here recently and we'll shut down for a couple of weeks at Christmas, spring break. We'll do the summer. And there's other things that we can do to encourage people to save energy like shutting off mini-fridges when they're not there and not having space heaters and that, which is a whole other conversation.

We don't take away the appliances from people. L.A. Unified tried to do that in 2009. It was a disaster, so we learned from that and we don't take away their heaters or take away their refrigerators, but we ask them to be responsible with them.

So those kinds of things we're doing, kind of surface level stuff, but the real deep program where you send a guy out there every week and they do an audit and they report on the audit. And they do work orders and track it and it's a whole system that you would have to do in order to really make it effective. And so right now, I just think that we're not even 10 percent effective as we could be, running a program like that at other districts, is what I'm comparing it to.

VICE CHAIR GOLD: Thank you.

MR. KAESTNER: This is Nick chiming in from San Francisco. Unrelated to Prop 39 we had a shared savings program in the district where we would encourage schools to reduce their energy usage and they could keep half of the savings. And that program regularly paid out, I would say up to 20 schools, with kind of a bonus at the end of the year out of about 105 schools that we have that aren't charters. So it wasn't wildly successful, but I think it did play a role in kind of raising the awareness of the school district as a whole. We've now actually incorporated that program into something broader that promotes sustainable education in schools in general, called Earth Day Every Day. And so that program is no longer a standalone program.

But I will say that Prop 39 has allowed -- the Energy Manager provided by Prop 39, as one of those side projects and side benefits I mentioned earlier, has gone out and done presentations to schools that want to know a little bit about their energy use or ways that they can reduce their energy use.

So I think there are ways, once again, provided you have an energy manager paid by Prop 39, there are ways that behavior piece can be tackled, even though the focus will obviously still be on projects.

CHAIR GORDON: That's a great point and those competitions can sometimes be or having divisions can compete against each other and things like that can sometimes work.

I know we have to move on soon, but I know both Barbara and Dave have questions. So I want to go to Barbara, go to Dave first.

BOARD MEMBER DIAS: I've been in the HVAC industry 35 years now. So it's really good to hear all the new equipment and everything else being put in. I just want to make sure that or ask if you guys are maintaining it because that's a huge energy waste if you have some issues with HVAC. If an economizer is stuck open, filters aren't being changed out right, the newer equipment somebody might not know if you have staff on that go to maintain it, you might not know how to check a fault detection or whatever it is.

And so is there funding for that in your school districts?

MR. MCGUIRE: All schools have routine restricted maintenance accounts, 3 percent of the budget. Most schools are funding that at that level. And that's where it comes from. Unfortunately that is not enough. And getting highly trained HVAC technicians in school districts is difficult based on what's going on in the economy. And

that you can make more money somewhere else, so we've had a difficult time finding qualified HVAC technicians to be able to do that work. But it's a continual struggle. Then we have air quality issues that we've got to change out more filters more often, as we said with the fires.

So absolutely every district is doing it, but they're doing it to all different levels. And some districts don't have HVAC technicians at all. They have to contract out with other school districts from the largest that have lots to small tiny ones that have none. So it's going to be everything in between with 1,000 school districts and 10,000 schools.

CHAIR GORDON: Barbara?

BOARD MEMBER LLOYD: So my question goes back to something that I think it was Darin mentioned the benchmarking data, and I'm wondering whether others feel like having a robust and readily accessible set of benchmarking data, whether it be regionally or statewide would have a material impact on your ability to do even more, or whether that's just a nice to have?

MR. KAESTNER: I think that's going to be up to each district, but I think for us it's somewhat of a nice to have, because we have this 2040 goal that we're working towards. And EUI is kind of the target we're using to decide if we're effective or not and if we've reached the

goals for any particular building.

We have been pushing the Public Utilities Commission to provide their water and electricity data and for PG&E's (indiscernible) gas data. So it is helpful in identifying locations where we're currently wasting energy. But in terms of making decisions around Prop 39 work since we as a district tend to piggy back on existing work, we have not used benchmarking to decide where do we need to go next. Because where do we need to go next is determined by other things like deferred maintenance.

Again, that's a San Francisco perspective, there's probably other districts that think that way. But as we've heard other districts are doing it differently, where they do focus the dollars on a particular energy project. And then the benchmark data would be very important, because you need to know where you can get the most bang for your buck.

MR. VEY: And I just want to add to that, Nik. You're absolutely right. And we find it vital, because it's simple. You've got to know where you're at now and how you compare so that you know how you can improve and how far have you improved. And so having that benchmarking data helps.

But just the analysis side, just to be able to do the analysis to say why is the this building so high and

where is it wasting energy and what steps do we have to take to make that happen, whether it's going in and doing preventive maintenance or retro-commissioning on HVAC equipment, because the economizer is broken or whatever. But the data usually leads you over to that area, and of course if you had sub-meters then you would even know exactly where it would be, and then you could even focus in and laser beam the problem. So I just wanted to add that to what you were saying, Nik.

MS. FERRERA: This is Anna Ferrera. I know DSA also, it's not like benchmarking, but they did their seven by seven by seven, where they had you know different schools and then they put in different types of energy measures. And so that the goal was that schools could then pick and choose and take a look at maybe the same climate zone or something like that. I don't know what kind of progress they've had with that but I think because every school is different, they really do kind of look inward.

But the other thing that we've been talking about also are looking at energy to get to your issue too, David, is this look at five-year master planning and maybe looking at having energy as a component of that. So that you're checking and you're putting in different projects over time from a planning perspective, but there are always things that happen or things that influence. But it's good to be

able to look at those things from a longer-term perspective.

It's just we've had this funding come. We never knew how much would actually be in any given year. And it took us a while to get started. And all of it's been input on a lot of what every school does.

MR. KAESTNER: Quick piggy back on that, we're expecting that during the modernization process we would do an energy -- basically a ZNE assessment, an energy model for each one of our buildings to help us inform which measures to implement. What we discovered though after about eight of ten of these is that they all basically look the same. That sample chart I showed with the LEDs dropping a lot and the heat pumping essential. So we stopped doing those because in our climate, we felt like we knew what the -- we'd done it on some elementary, some high school, something elses, we kind of knew what our game plan was.

I think there is value though, to doing those ZNE assessments. And then once you do a few of them I think you can probably stop and say okay this is our tool of tricks that's going to get a typical San Diego school or Twin Rivers school or L.A. school to become ZNE ready. And I know L.A. Unified has done the same thing.

CHAIR GORDON: Great. Thank you. I do want to

ask if anyone else on the phone or on the Board who's on the phone or on the phone generally has any questions or comments for either this part of the agenda of for the earlier part where I forgot to call for public comment on the school bus cost effectiveness program.

Do we have anybody, Jim, on the phone?

MR. BARTRIDGE: So if you have a question on the phone can you raise your hand? It doesn't look like it at this time, but we'll ask again during public comment.

CHAIR GORDON: Great. Thank you.

Thanks again to all of you, Anna, for all the work you've done with all the school districts, but also Nik and Bill and Darin for all your work. We really appreciate hearing what's happening actually on the ground in these very diverse schools.

And just want to say again, and Anna said this at the beginning, that our official Board recommendation to the Legislature last year was also to continue funding the program. We continue to think that is true and we will be doing another report to the Legislature in March. And we'll definitely take everything we've learned as input into that report. So thank you.

MR. BARTRIDGE: Okay. And next up is Hoang Nguyen from the Community College Chancellor's Office.

MR. NGUYEN: Good afternoon Chair Gordon and

fellow members of the Board. My name is Hoang Nguyen from the California Community College Chancellor's Office, here to present today on how we're doing for Proposition 39, the Clean Energy Jobs Act. Presenting on year five, a brief overview of what we did so far; go over our Board of Governor's Energy And Sustainability awards; and presenting today from a district we have Joe Fullerton from San Mateo CCD. He's the Energy and Sustainability Manager. And he's going to tell us about the impact that the proposition has had at his district.

I just want to confirm that Joe, are you still on the line?

MR. FULLERTON: I am still on the line, yes.

MR. BARTRIDGE: Great. Thank you.

CHAIR GORDON: Thank you, Joe, for being patient.

MR. FULLERTON: It's my pleasure. I'm learning a lot. Thank you, so going over a year five budget from '17-'18, the allocation, 12.8 percent of that went to the Work Force and Economic Development Division and some 5.9 million our Facilities Planning Unit. We got the rest of the funding and it turns out the district, we allocated 38.9 million to this system and 1.58 million goes to our consulting contract. This consulting contract's a little bigger than prior years, mainly because we extended it out to a year-and-a-half to help close out the program.

For the projects that closed out this past year, we had 38 districts totaling 139 projects. Total project costs is roughly 28 million. In terms of savings for kilowatt hours is 11.6 roughly. As you can see 1,200 kilowatts savings; 328,000 in therms. For the system as a whole, roughly 1.9 million in energy cost savings across the board, from those 38 districts.

For jobs, 155 direct job years for training job years and totaling 322,000 direct job hours and almost 9,000 apprentice direct job hours.

And for the IOUs, they paid out roughly 1.2 million in incentives.

The energy saved from all this roughly could power 2,200 homes for this past fiscal year.

What does that mean in terms of types of projects? Again lighting seems to be the top runner for the past five years being at 60 percent of the projects. In the beginning of Proposition 39 they were mainly outside lighting. Now, we're working towards the actual facilities themselves, from what I've been told so districts are working on the interior lighting for the campuses, the buildings themselves.

HVAC, 25 percent controls, etcetera, etcetera, totaling 139 projects; MBCBx/RCx self-generation and other energy efficiency measures. They're on the lower end,

mainly because they're longer types of projects, which districts don't seem to have the time to do, mainly because some districts don't get enough money to do the big projects or others just take too long.

Our program is based off of one year at a time kind of a deal versus five years as a whole, because we don't really know how much money we're going to get next year. So just don't want to hedge their bet on trying to cover those costs.

I told Jim that we had an awards system. And he thought it would be nice to present to the Board what we've been doing for the past several years on it. It started in 2012 just like to honor leaders in energy and sustainability efforts. Since 2012 it's evolved from there to what it is now and the different categories we had are in Proposition 39 projects, faculty-student initiatives and a sustainability champion.

As you can see in 2012, before Proposition 39 took affect we had district leadership, which Citrus College won that one. They helped write a sustainability template that we could share across the system for them to take a look at and just take that and move forward with. As Citrus was writing their own sustainability guide for their district they just took that and helped clear out some of the language and made a generic one that our office

could share across the system.

For Facilities in Operations, Butte College, they did a solar PV project and that won that year and Faculty/Student Initiatives was from Cuyamaca.

In terms of honorable mentions we have seven districts. I would have listed it, but it took way too much screen. In 2013, as Proposition 39 was coming on board we kept the 2012 formatting. Victor Valley won that year as the District Leadership Facilities and Operations from Santa Monica and West Valley took Faculty/Student Initiatives.

Not many projects in terms of what's going on in campus with HVAC or LED or anything like that. Most of the projects were something that the districts used mainly guidance for their campuses versus actual projects.

That all changed in 2014 when Proposition 39 really kicked into gear and districts were completing out projects. We started getting projects for campuses and buildings themselves. Retrofit Project Winner, Copper Mountain won that year for a campus-wide exterior lighting retrofit, Commissioning Project at College of the Desert for the RCx project they had at the library, Cañada College at San Mateo Solar Photovoltaic Installation, Imperial College, Gym Boiler Replacement.

We kept the Faculty/Student Initiatives because

that a good one between just to get the students involved on the campuses. So Skyline won that year for their Green Gorillas, it's a waste diversion that the students came up with, mainly a recycling program for the campuses. And the sustainability champion for that year was Fred Harris. Fred retired and moved on to a district and he's been the front runner for the system in terms of being sustainable across the 72 districts.

As we roll into 2015, we evolved it even further. There was no distinction between small and large districts in the way we gave out awards. So this year we started splitting up between large and small. A large district I believe is like 20,000 FTS (phonetic) versus the smaller portion of like zero to 20 FTS for small districts, I believe.

Mt. San Antonio won that year for a Central Plant Tie-In. Sequoias won for Exterior Lighting Retrofit as a small district. Retrofit winner Coast CCD for Interior. And the commissioning was Rancho Santiago. For that year, we didn't have any submissions from the Faculty/Student Initiatives although we sent out plenty of emails, but that's just like a submission based kind of on award.

For that year we had Fred Diamond from Citrus College as a sustainability champion. He led the front on the sustainability template that you saw earlier back in

2012. And he continues to move and push the system into being energy efficiency sustainable.

And in 2016, no real changes. We had less projects in terms of commissioning. We had, I think commissioning projects were taken off the board for list and we didn't have any renewable energy winners that year, but everything stayed the same, large districts, small, Rancho Santiago for the Interior Lighting; Solano for the Exterior, for a small district. Retrofit projects winner was Long Beach CCD with their HVAC. In terms of the Faculty/Student Initiative that year we had Marina Elena Anguiano from Butte, they have a MESA Sustainability Program, which is pretty fascinating. That year also for Sustainability a Champion we had Ken Albright leading the charge for the system.

For 2017, we evolved even further. We added the medium district category. Bringing up more of a fair playing field, you know, just to bring out the small, medium, large across the board. Coast won that year, Palomar for medium. Solano won again for being a small district. Retrofit winner was Butte-Glenn for their EMS upgrade. The Commissioning Project came back and I guess they're finished off with Cerritos RCx at Math/Science Building.

Renewable energy winner was Cabrillo for a Solar

Thermal Pool Heater. Mark Padilla of Chaffey for Living Lab. And for the energy sustainability winner that year, we had Joe Fullerton, who is on the phone. He helped out a lot over the past few years with the system, a lot of great insight into what we can do as a system to move forward and be sustainable.

So for all our funding that we have allocated throughout years one through five, it has all been encumbered by the districts. We're in the process of trying to close them out by June 2019. Years four and five projects have become more complex, so they take a little more time to try to complete.

As far as the DSA reviews have been longer, so as we move forward and possibly get future funding for this program or some variant of it we want to take that into consideration. Because a lot of districts are having a hard time trying to move from one year to the next when DSA reviews are taking longer and longer for their projects.

And we hope we'll have the Citizens Oversight Board Report next year for that as well. Just to say that districts have definitely appreciated it, the funding to do energy efficient projects on their campuses. I get that at least once or twice a month via phone call or email. So moving forward if we could advocate for more funding, either the Board or let our office know, we could

definitely help out in doing so.

Especially with ZNE on the table, EOB-1812 (phonetic) we're starting to tackle that in trying to figure out to write a guide for the system, but as (indiscernible) mentioned definitely a lack of funding at community colleges, so a lot of them are struggling and kind of wary of trying to meet those deadlines.

As for Workforce and Economic Development Division, they're a different unit. They have six sector navigators that are scrambling to get us data. I think it was mentioned in the year one report that they're about a half-year lag behind our program, mainly because they've got to go out and get contracts with their such navigators to go out and oversee those districts. But any information that you would want from them, their contact's right here. Javier Romero, he's the Dean; and Nicholas Esquivel, he's the specialist on that side of the program. And hopefully they'll get us information before we send in the report ether -- in January, I believe.

And with that I have Joe Fullerton to present San Mateo's projects and how Proposition 39 has helped them.

MR. FULLERTON: Good afternoon everybody. I just want to do a quick sound check everybody can hear me just fine.

CHAIR GORDON: Yeah. We can hear you.

MR. FULLERTON: Wonderful. Thank you so much for having me and for taking the time learning a lot today, especially from the K through 12 organizations, lots of really good work going on there. And really excited that there's this place where we can talk about these successes and think a little bit more about what this could look like, moving forward.

I don't have any slides for you. But normally you'd see me in person, kind of walking around the room and moving my arms a lot. But over the phone, just to give you a little introduction to SMCCD, and I guess before I even start, we do need more of this funding. It's really essential and has driven a lot of our energy efforts over the last couple of years.

The SMCCD, the San Mateo Community College District, is a three-college district. We have about 82 buildings, 2 million square feet of space, about 25,000 students and 2,000 employees and we have roughly 150,000 visitors to our campuses each year in this district.

And really we run a 24/7, 365 operation with lots of night classes, custodian operations happening at night, events all over the place on all three of our campuses. And so it's very rare that we have any significant periods of shut down with the exception of spring break, winter break. But our operations are still in place and we're

still hosting events and everything is still up and running for the most part.

We are fortunate to reside in one of the wealthiest counties in the nation, as some of you may know, San Mateo County is perennially right up there in terms of the cost of living and all those things. And we've been especially fortunate in our district to pass three bonds over the last 20 years that total over a billion dollars, as recently as 2016 for $400 million.

Even with that funding, and even with the affluence, we still have lots of challenges, lots of deferred maintenance. They are 1960s era campuses, so of our existing buildings are at or near the age of complete capital renewal, in many cases.

And as some of the presenters before me (indiscernible) actually some of our older buildings are some of the most efficient, because they don't have the HVAC equipment in them. And as the world continues to warm and we are faced with increasing resilience challenges we're looking at different ways not only to heat, ventilate and air condition those buildings, but also how to protect them from things like wild fires and earthquakes. And really be a place where the community can come feel safe to go in case of one of those emergencies.

And the overriding tide of sea-level rise is on

our doorstep here in San Mateo County as well in California will actually be the most economically impacted county in all of the states. So we're looking at that. All those things in the lens of gosh what can we do from energy sustainability front to make sure that not only are we responsible citizens, but we're taking the measures necessary to address the needs of our future students.

And Prop 39 has really been essential to that. In fact, we've not only been involved with some of the award winning projects and I, myself have been fortunate enough to be recognized for leadership. But we've been fortunate enough to have an opportunity to help many of the other districts do their Prop 39 projects and act as kind of an internal consultant for the California Community Colleges Chancellor's Office, because we're one of the districts that have somebody like me.

There's actually not too many energy and/or sustainability managers in the California Community college system. Out of 114 schools in this system, I know of about maybe 12 or 15 specific energy and/or sustainability managers. Most of the other districts with similar colleges have a Director of Maintenance Operations or perhaps a custodial manager, or somebody else on their site, that's doing things like energy management. Just doing things like carbon emissions calculations, if they're

doing that at all. That are doing things like trying to (indiscernible) waste.

Many of the colleges and districts are not -- usually do not have any things necessarily on their front of mind, because of all the other issues that the K through 12 centers did so well in summarizing. I will add that some of the existing challenges we have that we're addressing with Prop 39 at least in part, so we've been involved with all project of major exterior lighting project major, interior lighting project now. Our total Prop 39 funding has been about $2.2 million over the last five years.

And these projects have really seeded longer (indiscernible) efforts. We spent on the order of magnitude almost $20 million over that same time period, including the Prop 39 money to boost efficiency to monitor and meet our equipment, to really evolve the technological systems that we have on our campuses. And that is because one of our biggest sustainability challenges is going to be our demographics. And we have at or near the age of retirement, some even beyond the age of retirement, a workforce population.

It's really hard as one of the presenters noted earlier, to hire an HVAC technician or to hire an engineering custodial or something like that, particularly

if you are in the Bay Area where pay at Genentech or Google or SalesForce is significantly more than you might make at a local college district.

So we're faced with that demographic shift and we're really thinking about how we can store and manage the knowledge that we have electronically, so that the future generations of facility managers such as myself and those that might come after me can use that information wisely. So all of our Prop 39 projects, the few that I've mentioned there, have evolved our information systems as well and made sure that we're able to gather data and collect it and use it to analyze things.

And we've taken the extra step, and one of the reasons that I was honored back here to receive the Board of Governors Sustainability Champion Award, was because we're doing this by -- we're utilizing our campus as a living laboratory and our community as a teaching tool for our students. And so all of our Prop 39 projects have engaged students not only in the on-the-ground work, we have a requirement for internships and apprenticeship programs within all of our contracts.

All the data and resources that we used, the planning documents, all the -- before, after and during the project we're engaging students, faculty and staff in that process to use that as a learning tool. And that, in and

of itself, has taken on a whole other form. And we've been fortunate enough actually to get a grant through the Prop 39 fund in the workforce, education and development side at Skyline College. And we're advancing the energy and sustainability field in a group of other colleges around the state in providing high level energy and sustainability training to existing facility managers.

The operations of our existing facilities and those that are coming on board, whether in new bonds or in state-funded measures, we really need people to be able to understand and operate those facilities effectively, efficiently and with the highest degree of knowledge into their systems. That's one of the big challenges that we'll continue to face.

Our individual sustainability initiative is pretty comprehensive. We're looking at all the things that everybody else is looking at who does this professionally: energy, water, waste, transportation, etcetera. But this piece of tying it back to our educational mission is really critical. So we're really taking a lot of effort and pride and time to do that.

But the thing that is going to be essential for us and really even more so for a lot of our sister districts throughout the state is a consistent and a predictable energy fund and something to really maintain

the integrity of the work that's already begun. The momentum that we have now could very quickly and easily die. I feel like now that finally year five people are starting to get the understanding of how the systems work, be able to do the submittals, understand the process and the timeline it takes, there's different procurement methods and styles that come along with energy projects that are not familiar to many less sophisticated managers and districts.

And so now that people have finally gotten a grasp of that, and they've taken some of the somewhat low-hanging fruit off of the tree in terms of LED projects and solo projects etcetera, that they can kind of climb up higher into the tree with that knowledge, with that expertise and understanding of the systems, and the comfort with the funding mechanism itself.

So I think not only is it important to continue and appreciate the value of the existing Prop 39 Program, but to improve upon it so that there's this streamlined even more. The community college system has done a really good job of connection it directly with our utility incentive program funding resources so that it's a one stop application. And that has saved countless hours of administrative issues not only for our district, but I'm sure for many others as well.

So again I think it's a really great opportunity as this year five comes to a close in the very near future, that we know to reflect back and say, "Yeah, good job, but what can we do better and what can we do more of," and to really take that to the next level in terms of our long-term strategy to get the ZNE, to get to zero carbon, to get to zero waste, to reduce our potable water usage, and to really get to the leader in the world that California says they want to be and do that.

So that's all for me.

CHAIR GORDON: Thank you so much, Joe. That was great and really comprehensive. And thank you all for great presentations.

It struck me when you were talking about all the different sustainability champion awards. A bunch of them went to Butte College and Butte just let its students back I think at the very end of last week, because they were out for the entire time of the fire. Obviously it was a good reminder of the resiliency issues that are going to become a bigger and bigger part of the sustainability conversation as we heard from the other speakers as well.

I think one quick question I had for you is just in general, and maybe for Joe too, is how are you starting to incorporate some of those climate risk numbers and projections into how you're thinking about sustainability

across the colleges?

MR. FULLERTON: Yeah I mean -- I'm sorry, go ahead.

MR. HOANG: No go ahead first, Joe.

MR. FULLERTON: Well, I think for us it's kind of hard to hit the crystal ball where the numbers are going to lie, but we're looking at very specific projects that we can do.

For example, adding a battery on our existing solar array that would fund all of our emergency for essential lighting needs, maybe some essential air handling needs and some information technology needs for a few hours at a time when the sun is not directly shining. So there is this idea of islanding our campus and being able to store some energy for night time operations. So we're looking at that very sincerely. We have a couple of projects that are in the early feasibility states.

We were fortunate enough to actually, at this district, get some California Energy Commission funding a few years back. Unfortunately we weren't able to move forward with that project and have had to give that funding back to do kind a micro grid kind if pilot project here on our campus. And that would have been our first entree into that.

And I think more and more districts, as the cost

of renewables is coming down and batteries is coming down, even with tariffs and even with a lack of real concentration on this economically, those things are all driving this interest when we see that risk. So for us it's a matter of not only survival in the moment, but of business continuity. And so we're looking at very specific and detailed plans of how we can do that at all three of our campuses.

As to what other districts are doing, there are a few that are really leading on this effort. Some of the ones that were mentioned earlier, you mentioned Butte, they have a very extensive solar array. There are folks that could benefit tremendously from some resilience strategy. Matt out there, their energy manager is a really a bright and talented young man who I'm sure given the right resources could make that happen for them. But given the right resources and resourced properly, I should say, is a really tough challenge especially now.

MR. HOANG: As for our office we've been looking at figuring out different ways of trying to give out money for certain items like micro grid or battery storage, but in terms of what we have in our office. We're mainly like every other department out there; we're pretty much strapped for cash. So handing out money for certain items like that is kind of like really tough.

But in terms of trying to create policy we're trying to move forward towards that and maybe try and incorporate that into maybe capital outlay or scheduled maintenance or something like that. We're trying to figure out different ways of funding those types of projects, without getting anything from the state, but that's rather difficult, considering where we're at. But we're leading the charge to try to complete the ZNE guideline, trying to incorporate that into our sustainability guideline for the districts. And we're trying to update even our Board of Governors energy policy as well.

So we're making efforts toward being more sustainable as a system, but it's a long road ahead of us.

CHAIR GORDON: Thanks.

Other board members questions, comments? Anyone on the phone: Heather, Randall, Mark?

BOARD MEMBER

BOARD MEMBER MARTINEZ: Thank you, Kate. This is Randall, just one observation about all the presentations that were made, which were excellent. I think Mark Gold raised a question about optimization. And I would encourage, on a going forward basis we think about optimization plans.

CHAIR GORDON: Thanks, Randall.

Just taking a bunch of notes that I think will be

really valuable as we think about some of our recommendations for next year. And that is one of them. Heather, Mark? Anything you want to add?

BOARD MEMBER ROSENBERG: Nothing from me, thank you.

VICE CHAIR GOLD: Hi, nothing in particular, no.

CHAIR GORDON: Okay. Great, thanks guys. Glad you -- we actually made it with through the meeting with you guys staying on the phone. This is, I think, a first for this crew. Are there any one else on the phone want to ask a question or make a comment?

MR. HOANG: Actually I've got one comment. On January 14th I'd like to invite the Board to our 2018 Board of Governors Energy Sustainability Awards. It's been pushed up for two meetings now, but hopefully we'll have it on January 14th. I'll send the information to Jim to pass to the members.

CHAIR GORDON: Thank you. It's always great to hear about the work happening on the ground and I bet that's a great meeting, so thanks.

MR. HOANG: Thank you.

CHAIR GORDON: I appreciate it.

We don't have anybody else on the phone wanting to ask anything, do we Jim?

MR. BARTRIDGE: Any others, Eli? Nope.

CHAIR GORDON: Great. Well given that, any public comment on anything on the agenda or just in general, in the room or on the phone?

MR. BARTRIDGE: Anyone in the room with any comments?

MR. FULLERTON: This is Joe Fullerton again. And I just wanted to comment on -- respond a little to the optimization comment. I think, if I remember correctly, the earlier comment had to do a little bit with ongoing maintenance and operations and really how to optimize systems.

Some of the big gaps there for a lot of schools, and this is K through 12 as well as the community colleges, is in data gathering. And beyond that there's also data analytics and somebody to actually do that work. So when we're really thinking about optimization we have to take into consideration the demographic shift that I mentioned earlier. A lot of the -- not all but a lot of the current facilities maintenance workforce throughout the state -- and this is not exclusive to community colleges or K through 12 at all. But a lot of public facilities have this as well, where a lot of the current maintenance operations staff is not needed to a lot of technological systems that have been developed for modern facilities.

That's changing, but not nearly as quickly as our need to reduce our energy use and carbon emissions, our energy consumption and carbon emissions.

So it's a really important consideration as we're thinking about optimization that not only are we giving some consideration as to the tools that people will need, the analysis mechanisms and technologies, but also the resources and training that they'll need to understand and take advantage of that information. And then to layer those in a way that when people are utilizing the information in the systems that they perhaps put in place with some technological funding, that there's an actual advantage to them. And there are resources available to do that, almost like a tiered grant system.

So I think that the optimization thing is there's a lot of opportunity there. You don't have to look far to see the data in existing buildings to understand that. But there's also just really large challenges, particularly in organizations like ours where at least deferred maintenance is growing, with a lack of state funding and with a lack of a really concentrated effort and a consistently shifting demographic.

CHAIR GORDON: So thank you. That's an incredibly important reminder about both the state of the workforce and the state of the facilities. So thank you

for that.

Jim, do we have anything else before we adjourn today?

MR. BARTRIDGE: We have nothing else. That's the end. No other public comments on the phones.

And just quick reminder that for folks that January, February, March will be busy for the Citizens Oversight Board. We'll have two meetings, one in mid-February sometime to receive the reports that we're getting from the other agencies. Then we'll have one in March. We'll develop our report in between there and go over our report and some real time editing like last year. See if we can improve that a little bit, but it'll be a sort of fast-paced January, February, March for us for our report due to the Legislature on March 31st.

CHAIR GORDON: Thank you.

Thanks everybody and the meeting's over. Thanks.

(Adjourned at 3:28 p.m.)

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